

§ 572.196

(2) Peak lateral acceleration of the upper spine (T1) shall not be less than 34 g and not more than 43 g, and the lower spine (T12) not less than 29 g and not more than 37 g;

(3) Peak impactor acceleration after 5 ms after time zero shall be not less than 30 g and not more than 36 g.

[71 FR 75370, Dec. 14, 2006, as amended at 74 FR 29895, June 23, 2009]

§ 572.196 Thorax without arm.

(a) The thorax is part of the upper torso assembly shown in drawing 180-3000. For this thorax test, the dummy is tested as a complete assembly (drawing 180-0000) with the arm (180-6000) on the impacted side removed. The dummy's thorax is equipped with T1 and T12 laterally oriented accelerometers as specified in 49 CFR 572.200(d) and with deflection potentiometers for the thorax as specified in drawing 180-3881, installed as shown in drawing 180-0000 sheet 2 of 5. When subjected to the test procedure specified in paragraph (b) of this section, the thorax shall meet the performance requirements set forth in paragraph (c) of this section.

(b) *Test procedure.* (1) Soak the dummy assembly (180-0000) in a test environment as specified in 49 CFR 572.200(j).

(2) Seat the dummy, outfitted with the torso jacket (180-3450) and cotton underwear pants on a calibration bench, specified in Figure V3 in appendix A to this subpart, the seat pan and the seatback surfaces of which are covered with a 2-mm-thick PTFE (Teflon) sheet.

(3) Align the outermost portion of the pelvis flesh of the impacted side of the seated dummy tangent to a vertical plane located within 10 mm of the side edge of the bench as shown in Figure V6-A, while the midsagittal plane of the dummy is in vertical orientation.

(4) Push the dummy at the knees and at mid-sternum of the upper torso with just sufficient horizontally oriented force towards the seat back until the back of the upper torso is in contact with the seat back.

(5) While maintaining the dummy's position as specified in paragraphs (b)(3) and (4) of this section, the top of the shoulder rib mount (drawing 180-

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3352) orientation in the fore-and-aft direction is 24.6 ± 2.0 degrees relative to horizontal, as shown in Figure V6-B in appendix A to this subpart.

(6) Adjust orientation of the legs such that they are symmetrical about the mid-sagittal plane, the thighs touch the seat pan, the inner part of the right and left legs at the knees are as close as possible to each other, the heels touch the designated foot support surface and the feet are vertical and as close together as possible.

(7) The impactor is specified in 49 CFR 572.200(a).

(8) The impactor is guided, if needed, so that at contact with the thorax, its longitudinal axis is within 1 degree of a horizontal plane and perpendicular to the midsagittal plane of the dummy. The centerpoint of the impactor face is within 2 mm of the vertical midpoint of the second thorax rib and coincident with a line parallel to the seat back incline passing through the center of the shoulder yoke assembly arm rotation pivot (drawing 180-3327), as shown in Figure V6-A in appendix A to this subpart.

(9) The dummy's thorax is impacted at 4.3 ± 0.1 m/s.

(10) Allow a period of at least thirty (30) minutes between successive tests of the same thorax assembly.

(c) Performance criteria.

(1) While the impactor is in contact with the dummy's thorax, the ribs shall conform to the following range of deflections:

(i) Upper thorax rib not less than 32 mm and not more than 40 mm;

(ii) Middle thorax rib not less than 39 mm and not more than 45 mm;

(iii) Lower thorax rib not less than 35 mm and not more than 43 mm;

(2) Peak acceleration of the upper spine (T1) shall not be less than 13 g and not more than 17 g and the lower spine (T12) not less than 7 g and not more than 11 g;

(3) Peak impactor acceleration shall not be less than 14 g and not more than 18 g.

[71 FR 75370, Dec. 14, 2006, as amended at 74 FR 29895, June 23, 2009]

§ 572.197 Abdomen.

(a) The abdomen assembly is part of the upper torso assembly (180-3000) and

is represented by two ribs (180-3368) and two linear deflection potentiometers (180-3881). The abdomen test is conducted on the complete dummy assembly (180-0000) with the arm (180-6000) on the impacted side removed. The dummy is equipped with a lower spine laterally oriented accelerometer as specified in 49 CFR 572.200(d) and deflection potentiometers specified in drawing 180-3881, installed as shown in sheet 2 of drawing 180-0000. When subjected to the test procedure as specified in paragraph (b) of this section, the abdomen shall meet performance requirements of paragraph (c) of this section.

(b) *Test procedure.* (1) Soak the dummy assembly (180-0000) in a test environment as specified in 49 CFR 572.200(j).

(2) Seat the dummy, outfitted with the torso jacket (180-3450) and cotton underwear pants on a calibration bench, specified in Figure V3, the seat pan and the seatback surfaces of which are covered with a 2 mm thick PTFE (Teflon) sheet.

(3) Align the outermost portion of the pelvis flesh of the impacted side of the seated dummy tangent to a vertical plane located within 10 mm of the side edge of the bench as shown in Figure V7-A in Appendix A to this subpart, while the midsagittal plane of the dummy is in vertical orientation.

(4) Push the dummy at the knees and at mid-sternum of the upper torso with just sufficient horizontally oriented force towards the seat back until the back of the upper torso is in contact with the seat back.

(5) While maintaining the dummy's position as specified in paragraph (b)(3) and (4) of this section, the top of the shoulder rib mount (drawing 180-3352) orientation in the fore-and-aft direction is 24.6 ± 2.0 degrees relative to horizontal, as shown in Figure V7-B in appendix A to this subpart);

(6) Adjust orientation of the legs such that they are symmetrical about the mid-sagittal plane, the thighs touch the seat pan, the inner part of the right and left legs at the knees are as close as possible to each other, the heels touch the designated foot support surface and the feet are vertical and as close together as possible;

(7) The impactor is specified in 49 CFR 572.200(b);

(8) The impactor is guided, if needed, so that at contact with the abdomen, its longitudinal axis is within ± 1 degree of a horizontal plane and perpendicular to the midsagittal plane of the dummy and the centerpoint of the impactor's face is within 2 mm of the vertical midpoint between the two abdominal ribs and coincident with a line parallel to the seat back incline passing through the center of the shoulder yoke assembly arm rotation pivot (drawing 180-3327), as shown in Figure V7-A in appendix A to this subpart;

(9) The dummy's abdomen is impacted at 4.3 ± 0.1 m/s.

(10) Allow a period of at least thirty (30) minutes between successive tests of the same abdomen assembly.

(c) *Performance criteria.* (1) While the impact probe is in contact with the dummy's abdomen, the deflection of the upper abdominal rib shall be not less than 36 mm and not more than 47 mm, and the lower abdominal rib not less than 33 mm and not more than 44 mm.

(2) Peak acceleration of the lower spine (T12) laterally oriented accelerometer shall be not less than 9 g and not more than 14 g;

(3) Peak impactor acceleration shall be not less than 12 g and not more than 16 g.

[71 FR 75370, Dec. 14, 2006, as amended at 74 FR 29896, June 23, 2009]

§ 572.198 Pelvis acetabulum.

(a) The acetabulum is part of the lower torso assembly shown in drawing 180-4000. The acetabulum test is conducted by impacting the side of the lower torso of the assembled dummy (drawing 180-0000). The dummy is equipped with a laterally oriented pelvis accelerometer as specified in 49 CFR 572.200(d), acetabulum load cell SA572-S68, mounted as shown in sheet 2 of 5 of drawing 180-0000, and an unused and certified pelvis plug (180-4450). When subjected to the test procedure as specified in paragraph (b) of this section, the pelvis shall meet performance requirements of paragraph (c) of this section.